

INTEGRATED CIRCUIT DEVICES HAVING BARRIER LAYERS BETWEEN UPPER  
ELECTRODES AND DIELECTRIC LAYERS AND METHODS OF  
FABRICATING THE SAME

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ABSTRACT OF THE DISCLOSURE

Integrated circuit devices are provided including an integrated circuit substrate and a capacitor on the integrated circuit substrate. The capacitor includes a lower electrode on the integrated circuit substrate, a dielectric layer on the lower electrode and an upper electrode on the dielectric layer. A barrier layer is provided between the dielectric layer and the upper electrode. The barrier layer includes titanium oxide. Related methods of fabricating integrated circuit devices are also provided.

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10 Doc # 353522